311 total arable land has remained more or less constant, in spite of the fact that some land along the eastern coast of the island as well as some 300,000 hectares of grass land in the mountains might be developed either for crops or as grazing land if the expense of such projects did not seem to indicate that the cost would be prohibitive.[4] When the [55] Shihmen dam and reservoir project is completed, waste land on the banks of Tanshui River can be converted into paddy fields. It is believed that the completion of the dam will make possible the reclamation of at least 54,000 hectares.[5]

241 Paddy fields constitute about 60 per cent of the total cultivated land in Formosa. They are classified in two categories -- double-cropping fields and single-cropping fields. The former yields two crops of rice each year. Between rice crops, one crop of vegetables is planted and harvested. In single-cropping fields, besides one crop of

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4. Table 196, "Summary of Statistics of Taiwan for the Past Fifty-one Years," Taiwan Agricultural Yearbook, 1954, p. 20.

5. Chung-yang Jih-pao [The Central Daily News], Taipei, July 1, 1955.

52:Barclay S-5 (no date)1954 AD1 Formosa AD1

the Japanese undertook primarily in anticipation of long-term benefit, without being able to justify its initial cost for many years. In terms of kilometer-tons of freight carried, the railroad made only partial use of its physical facilities until late in the colony's existence.[28] This sort of schedule was also followed in establishing a system of improved roads and trails over the island. In both cases, Japanese had to bear the burden of ambitious engineering projects when they could least afford it, for basic transportation networks are more valuable as networks than they are piecemeal.

Public irrigation was a project closely tied to agriculture, and followed a different timetable (see Fig. 7). After 1895 there was no large

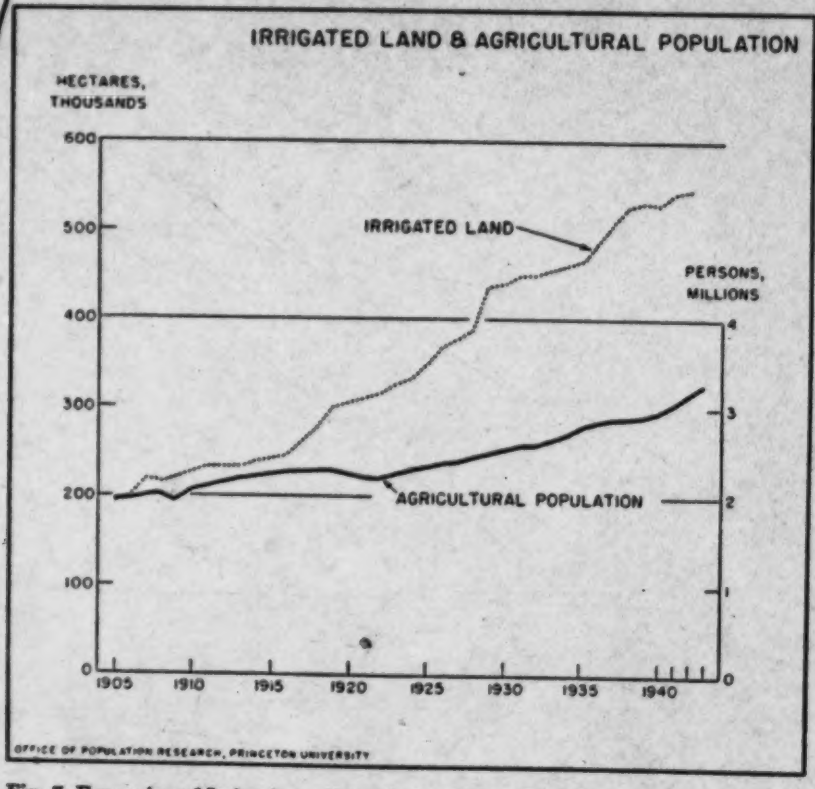

Fig. 7. Expansion of Irrigation and Agricultural Population in Taiwan, 1905-1943.

[28] Then it suddenly became overtaxed with cargo connected with the war, stemming from industrial growth and from Taiwan's role as a military base. See OPNAV, Civil Affairs Handbook, *Taiwan—Economic Supplement* (1944), p. 60.

52:Barclay S-5 (nodate)1954 AD1 Formosa AD1

supply of unoccupied land in Taiwan that could be drawn into cultivation, and so the needs of an expanding farming population and growing export demand had to be met by other means. The Japanese turned again to large investment to improve the effectiveness of the land that there was. The manner of constructing and upkeep of irrigation canals in Taiwan depended on mass labor. They were turned into an investment of labor, employed so as to produce an important form of capital equipment. The extent of irrigation more than kept pace with rural population growth while the Japanese were in control. Water for this purpose became indispensable in maintaining the output of farms. It was a hidden element in the improvement of rice and sugar yields, for the new varieties of seed that were developed were types that needed to be carefully irrigated.

Finally, the development of electric power was so closely related to the growth of Taiwan's newer industries that it should not be passed over without mention. Generation of electricity was one of the specialized heavy investments that formed the nucleus of the "industrial" progress after 1930. This is evident in a circumstantial way from the trends of capacity in generating power and the spread of factory employment (see Fig. 8). Factories in Taiwan came to depend on the cheap electricity that was developed at state instigation from water power. Judged from the size of their employment, the most important of the mechanized factories in the island were "food" (i.e., sugar) and metallurgical plants, which were the heaviest users of electricity.

As the next chapter will indicate, the Japanese broadened their objectives in Taiwan too late to put its human resources to best use in the new effort. Drawing the developed wealth of the island together into centralized control had turned out to be singularly advantageous. It had erected an entire structure of corporate organization from specialized financial services down to the coordinating of actual physical production of commodities. The Government-General had retained a close supervision over this structure, by licensing, regulation, and participation as a shareholder. As a program it quickly marshalled the production of Taiwan's farms into a profitable colonial enterprise.

When it came to pressing this development further, however, the Japanese made no real progress, for they had frustrated these aims in advance. Under agrarian conditions, industrial skills and experience in management are slower and more difficult to accumulate

82:Steiner S-4 (no date)1951
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427 acres) as a measuring stick for rental calculation. It varies with the fertility of land in different sections of Taiwan. To prepare the farmers for the acceptance of the program, 9,937 persons were sent to the rural areas in 1949 to acquaint them with the operational details. They were followed by 1,257 trained persons who helped farmers to readjust their rental contracts. By November 1949, 306,473 families were given "37.5-contracts" in conformity with the program. Finally, 26 provincial inspectors toured the island to check the results. 494 The income of the tenant farmers was estimated to have registered an average gain of 30 per cent, ranging from 0.9 per cent to as high as 70 per cent in comparison with the pre-reform period.[31]

653 Pertinent to rural rehabilitation are the public works being done in dike repair and construction, irrigation, and land reclamation. Briefly, from 1947 to 1950, some 10,983 meters of new dikes were built, in addition to 65,288 meters repaired. Since 1946 a yearly average of 9,972 hectares of land has been brought under irrigation, in comparison to an average of 9,428 hectares under the Japanese.[32]

433 A review of statistics also shows varying degrees of gains in agricultural production.[33] For instance, for 1950 the

NT$1,432,000,000 (*Taiwan Today*, cited note 11 *supra*, pp. 59–61).

[31] For statistical data on the rent reduction program, see Land Bureau, Taiwan Provincial Government, *37.5 Rent Reduction Program* (Taipeh, 1949), pp. 1, 19, 34; *Taiwan Today*, cited note 11 *supra*, p. 90; *Taiwan Reconstruction*, cited note 12 *supra*, Vol. 2, p. 383; Vol. 1, p. 25.

[32] *Taiwan Reconstruction*, cited note 12 *supra*, Vol. 1, pp. 227–28, also for comprehensive data, pp. 227–43. For a general descriptive and statistical presentation of the subject, see Taiwan Provincial Government, *Water Conservancy and Irrigation*, Taipeh, 1949; also *Reclamation of Waste-land*, Taipeh, 1949.

[33] For detailed statistical data on agricultural production, see Taiwan Provincial Gov-

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